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ABSTRACT

This study offers field estimates of the factor validity and internal consistency reliability of the Self-Esteem Index (SEI) using SEI data from 208 regular and special education students in grades 3, 4, and 5. Exploratory factor analytic results support the existence of four factors as anticipated; however, various inconsistencies are noted between the anticipated and actual factors with which particular items are associated. Likewise, confirmatory LISREL results indicate a somewhat poor fit of the data to the expected factor model. Alpha reliability results are somewhat more promising, with coefficients for the entire scale and the four anticipated subscales exceeding 0.80. Based on the findings, cautions are offered regarding use of the instrument in educational settings. Two tables are included. (Contains 22 references.) (Author/SLD)

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FACTOR VALIDITY AND RELIABILITY OF THE SELF-ESTEEM INDEX: FINDING INCONSISTENCIES BETWEEN NORMATIVE AND FIELD STUDY RESULTS

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ABSTRACT

The purpose of the present study was to offer field estimates of the factor validity and internal consistency reliability of the Self-Esteem Index (SEI) using SEI data from 208 regular and special education students. Exploratory factor analytic results supported the existence of four factors as anticipate; however, various inconsistencies were noted between the anticipated and actual factors with which particular items were associated. Likewise, confirmatory LISREL results indicated a somewhat poor fit of the data to the expected factor model. Alpha reliability results were somewhat more promising, with coefficients for the entire scale and the four anticipated subscales exceeding .80. Based on the findings, the authors offer cautions regarding use of the instrument in educational settings.

FACTOR VALIDITY AND RELIABILITY OF THE SELF-ESTEEM INDEX: FINDING INCONSISTENCIES BETWEEN NORMATIVE AND FIELD STUDY RESULTS

Measurement has been defined broadly as follows: "The process of quantifying according to a standard. The assignment of numerals to represent objects, individuals, or phenomena" (Payne, 1992, p. 551). In the natural sciences, variables of interest (e.g., size, duration, length, height, intensity, pressure, mass, volume, temperature, density) are generally measured directly, with little margin for error so long as (a) a relatively accurate tool is utilized to make the measurement and (b) the measurement is accurately recorded. By contrast, social scientists focus on the measurement of abstract traits (e.g., intelligence, achievement, maturity, motivation, self-esteem) which cannot be directly measured. Hence, educators and social scientists find it necessary to measure variables of interest indirectly via measurements of specific behaviors they feel approximate or demonstrate the traits of interest. Performance on various types of tests and assessments has become one of the primary categories of behaviors used to determine estimates of individuals' mental abilities.

For example, if a teacher or researcher wishes to determine the degree to which a child is ready to enter school, various "developmental" or "readiness" tests such as the Metropolitan Readiness Tests (Nurss & McGauvran, 1986) or the Boehm Test of Basic Concepts (Boehm, 1986) might be given to the child. Typical behaviors of the child assessed by these kinds of tests include the child's ability to identify similarities and differences in objects, recognize certain letters, words, and numbers, and reproduce a geometric figure from memory. This testing scenario illustrates well certain potential

problems social scientists and educators face when measuring students' abilities. For example, one might debate the validity of a particular readiness test, claiming, for instance, that the behaviors being assessed do not truly reflect the latent characteristic which the tool purports to assess, that the items included in the test do not adequately sample the domain of skills relevant to the construct supposedly being measured, or that the estimates of the child's ability derived from the test do not correspond with estimates of the child's ability gathered from other sources. In addition, one might question the reliability of the test, arguing that young children's behavior is highly unpredictable given variations in such things as the individual administering the test, the sampling of items included in the test, or the circumstances under which the test is given.

As this example illustrates, educators and social scientists must take pains to provide data to support the psychometric integrity of the measurement tools they utilize. Distributors of published instruments, in particular, must conduct and report reliability and validity studies using data gathered from appropriate representative samples. Obviously, less than adequate psychometric data exist for many published instruments, even though many such tests are attractively marketed. Indeed, as noted by McDaniel (1994, p. 76), test users should beware of "responding to the gleam in the publisher's eye rather than to the hard facts [i.e., actual data] about what the test can do." Use of instruments with inadequate data to support their psychometric integrity is extremely dangerous considering that potentially important decisions about people are often made

based, at least partially, on scores derived from various published instruments (Oosterhof, 1994).

Use of instruments with poorly established psychometric properties may also be detrimental to the interpretation of research findings in cases in which one or more of the instruments used in a study has poor psychometric properties (Thorndike, Cunningham, Thorndike, & Hagen, 1991). For example, Locke, Spirduso, and Silverman (1987, p. 28) have noted, "the correlation between scores from two tests cannot exceed the square root of the product for reliability in each test." Thus, using an extreme case, if a researcher were investigating the relationship between subjects' scores on two instruments, one of which had a perfect reliability coefficient ($r = 1.00$) and one of which yielded a totally unreliable result for the data in hand ($r = .00$), the researcher could not reasonably expect there to be any degree of correlation between the two constructs of interest.

By contrast, other instruments are accompanied by detailed technical manuals presenting a wealth of data supporting the instruments' psychometric integrity. Certainly, one would be impressed with a standardized achievement battery that had been normed with tens of thousands of examinees, who proportionally represented the American population in terms of gender, ethnicity, regionality, SES, and other noteworthy demographic factors. One would be even more impressed if the manual for the test offered data solidly supporting the content, criterion-related, and construct validity and the internal consistency, equivalence, and stability reliability of the instrument.

However, even in this latter case, the test user would not necessarily want to place blind confidence in the instrument (Thorndike et al., 1991). Test users must examine factors such as the similarity of the persons in their sample to the normative sample on which the test publisher based its psychometric integrity data. Further, test users should examine their specific purposes for using the instrument. As Worthen, Borg, and White (1993, p. 178) have pointed out:

> Validity is not. . .a property of the instrument itself. Rather, it is an indication of the extent to which the interpretation of test results for a particular group of students are appropriate for a given purpose. . . .Therefore, one should not speak of a test as valid or invalid in general; rather, test scores can be spoken of as valid or invalid with reference to the specific purpose and use for which the test was intended, and the accuracy and appropriateness of the interpretations and decisions made from the resulting scores. Scores from a particular test may be highly valid for one purpose with one population of examinees and totally invalid if used for another purpose or with a different set of examinees. (emphasis in original)

The Measurement of Self-Esteem

For a number of years, researchers and educators have maintained a high degree of interest in the self-esteem construct. As noted by Brown and Alexander (1991, p. 1), "Self-esteem often is cited as a correlate of the emotional, behavioral, and academic problems experienced by school-aged individuals. The improvement of a child's self-esteem frequently is the goal of counseling, therapy, or other interventions that may be

implemented." Likewise, Benner, Frey, and Gilberts (1983), speaking particularly about academic self-esteem, commented, "Considered as both a moderator variable to help explain school performance and an outcome variable of school success or failure experiences, academic self-esteem has become an important theoretical construct in educational planning, research, and evaluation" (p. 127).

A number of measures of self-esteem designed for use with children and youth have been developed, including the Piers-Harris Children's Self-Concept Scale (Piers, 1984), the Self-Esteem Inventories (Coopersmith, 1984), the Perceived Competence Scale for Children (Harter, 1982), the Self-Perception Profile for Adolescents (Harter, 1988), and the Self-Esteem Questionnaire (Cornacchia, Smith, & Bentel, 1978). Authors of these various scales have typically offered at least some evidence to support the validity and reliability of the measures. Despite these efforts by authors to substantiate the usefulness of self-esteem instruments, many of these instruments fail to meet necessary standards of psychometric integrity. As early as 1973, Crandall, in a review of then-existent self-esteem measures, identified lack of measurement validity as the "central problem in self-esteem research" (p. 51). Interestingly, two decades later, Brown and Alexander (1991, p. 1) echoed these sentiments, noting, "Of the 12 self-concept measures reviewed in A Consumer's Guide to Tests in Print (Hammill, Brown, & Bryant, 1989), only one was found to have acceptable norms and empirical evidence of validity and reliability."

Furthermore, many researchers have criticized these and other similar measures, claiming that they do not necessarily stand up to their authors' claims under "real

world" research and evaluation conditions. For instance, the validity of the Piers-Harris Children's Self-Concept Scale, perhaps the most widely used instrument of its type, has been questioned on the grounds of problems associated with the readability of the items when the instrument is used with third-grade students (Mann, 1984).

Recently, a new measure of children's self-esteem, the Self-Esteem Index (SEI) (Brown & Alexander, 1991), has appeared on the scene. The SEI's Examiner's Manual details a series of procedures that were used in constructing and norming the SEI, including purposive selection of items, content validation strategies, item analyses, selection of a representative normative sample, and computation of validity and reliability estimates. A principal components factor analysis based on the data from the standardization sample (n = 2,450), yielded four components that matched the author's hypothesized dimensions of familial acceptance, academic competence, peer popularity, and personal security. In general, alpha reliability coefficients for these subscales were adequate, with an overall coefficient alpha of .93 and subscale alphas for the entire sample all in excess of .80. Alphas across age level of the subjects were similarly appropriate, although alphas for younger subjects were slightly lower than those for older subjects (Brown & Alexander, 1991).

The SEI holds promise to be an exceptional tool of its type for the purposes of self-esteem assessment and research. However, estimates of the instrument's validity and reliability based on field tests other than those reported by the author are virtually non-existent. In fact, a search through the ERIC and PsychLit computerized data bases covering the time period of 01/82 through 06/94 yielded no references to studies of this

type. Hence, additional estimates of the psychometric properties of the SEI are needed in order to establish evidence of the effectiveness of the instrument when employed under various measurement conditions.

Purposes

The purposes of the present study were (a) to offer field estimates of the SEI's factor validity and internal consistency reliability and (b) to determine whether these estimates differed from validity and reliability estimates provided by Brown and Alexander (1991) in their normative studies on the SEI. Although validity and reliability may be assessed through a variety of techniques, the present study was limited to internal consistency estimates of reliability and to estimates of construct validity based on exploratory and confirmatory factor analytic procedures. These procedures were utilized as they are among the most commonly used means of determining reliability and validity estimates for instruments of this type and as they reflect procedures utilized by Brown and Alexander (1991) for purposes of determining initial estimates of the psychometric properties of the instrument. Employing techniques similar to those employed in the standardization of the instrument allowed for more direct comparisons of findings of the present study with those using the Brown and Alexander (1991) data.

Methodology

Subjects

Subjects utilized for the purposes of the present study were third-, fourth-, and fifth-grade regular and special education students (n = 208) from three public schools in

Mississippi. The schools were from two separate districts with similar student demographics representing a small, middle-class, suburban population. The selection criteria entailed inclusion of all students receiving special education services (both gifted and learning disabled) with the remainder of the population being randomly selected from general education students. Teachers were given a list of those students who were eligible to participate in the study. Permission to collect data for the two districts was granted from the Board of Education or the local superintendent of the districts. Data were collected during the 1993-1994 school year.

Instrumentation

The SEI was used to measure the perceived self-esteem of students included in the present study. The SEI is a norm-referenced, self-report instrument consisting of 80 items designed to elicit children's perceptions of their personal behaviors and characteristics (Brown & Alexander, 1991). It is a measure of self-esteem designed for individuals of school age. The instrument is said to be appropriate for ages 8-0 through 18-11 years and a 30 minute testing session is generally sufficient for administration. It is a paper-and-pencil inventory that can be given individually or in groups. A modified Likert-type scale is used to classify each item as "Always True," "Usually True," "Usually False," or "Always False."

The SEI is divided into four 20-item scales: the Perception of Familial Acceptance Scale which measures self-esteem at home and within the family unit, the Perception of Academic Competence Scale which measures self-esteem in academic and intellectual endeavors, the Perception of Peer Popularity Scale which measures self-esteem in social

situations and interpersonal relationships with peers, and the Perception of Personal Security Scale which measures self-esteem based on an individual's feelings about his or her physical and psychological well-being. Items representing each scale are interspersed throughout the instrument; therefore, individual scales cannot easily be given independently of each other. Scores are obtained for each scale and for the total test (Brown & Alexander, 1991).

Data Collection and Analysis

The SEI was administered to the subjects by the second author during regular classroom sessions at their respective schools. Procedures for administering the instrument as detailed by Brown and Alexander (1991) were strictly followed. No major irregularities in the data collection process were noted.

In addressing the purposes of the present study, several procedures were used to analyze the data. First, exploratory principal components factor analysis was utilized as a means for gathering initial evidence about the factor structure of the items. This analysis was performed using the SPSSx FACTOR procedure, with results rotated to the varimax criterion. Second, a confirmatory factor analysis based on the theorized factor structure of the instrument (Brown & Alexander, 1991) was performed using the LISREL VI software (Joreskog & Sorbom, 1986) to determine whether the theorized factor model could be identified using the data in hand. Finally, alpha reliability was used to provide evidence of the instrument's internal consistency based on the data in

hand. The reliability analysis was performed using the SPSSx RELIABILITY procedure.

Findings

Usable data were returned by 199 (95.7%) of the 208 subjects. These included 68 (34.2%) third, 65 (32.7%) fourth, and 66 (33.2%) fifth graders. One hundred eleven (55.8%) were male and 88 (44.2%) were female. Ninety (45.2%) were regular education students, 23 (11.6%) were identified as gifted, and 86 (43.2%) were identified as special needs students, with learning disabled being the most prominent category of exception.

Results of Exploratory Factor Analytic Procedures

The initial exploratory principal components factor analysis performed with the SEI from the 199 subjects yielded 24 factors with eigenvalues greater than unity. Prior to rotation, 56 of the 80 items were correlated more than |.30| with the first factor. Analysis of the "scree" plot (Cattell, 1966) indicated an initial flattening out of the eigenvalues between Factors III and IV, followed by a secondary flattening out somewhere between Factors IV and VII. Four subsequent analyses were performed using solutions extracting between four and seven factors in an attempt to find the most interpretable solution. Results of these analyses were rotated to the varimax criterion.

Upon inspection of the results of these analyses, it was decided that the four-factor solution was the most interpretable. These four factors were relatively discrete, with the majority of items being univocal (i.e., "speaking through" only one factor). The five-, six-, and seven-factor solutions were not as interpretable, with later factors across the analysis poorly defined by only one or two items and/or with many "doublet"

items (i.e., items correlating highly with more than one factor). The extracted factors from the four-factor solution, collectively, accounted for 31.1% of the variance, with Factors I through IV, respectively, having pre-rotational eigenvalues of 12.86, 4.83, 4.36, and 2.86. The varimax-rotated factor structure matrix for this solution is presented in Table 1.

INSERT TABLE 1 ABOUT HERE

Factors were interpreted using a minimum factor saliency criterion of |.35|. The decision to use this level of saliency was based on the principle of allowing as many of the items as possible to be identified with at least one factor while minimizing the number of doublets. The |.35| criterion resulted in 71 of the 80 items being identified with at least one factor and with only six doublets. The four factors were somewhat loosely identified with the four factors identified by Brown and Alexander (1991) although a number of inconsistencies were noted. A description of each of the factors follows.

Factor I, which had a prerotational eigenvalue of 12.86, was defined by 25 items. As noted in Table 1, 11 of these items were associated with Brown and Alexander's (1991) Perception of Personal Security subscale. Of the remaining 14 items, 10 were from Brown and Alexander's original Perception of Familial Acceptance subscale and four were from the Perception of Academic Competence subscale. Although Factor I was somewhat unclear, it was deemed most like the Personal Security subscale with a tendency toward a g-factor.

Factor II, which had a prerotational eigenvalue of 4.83, was defined by 22 items. Eleven of these items were from Brown and Alexander's intended Perception of Familial Acceptance subscale. However, 12 additional items were from the Perception of Peer Popularity subscale, and one item was from the Perception of Academic Competence subscale. Even though there were approximately equal numbers of the familial acceptance and peer popularity items included on this factor, it was deemed that the factor was beginning to approximate the familial acceptance subscale since the structure coefficients for these items were generally somewhat higher than those for the peer popularity items.

Factor III, with a prerotational eigenvalue of 4.36, was perhaps the most easily interpretable factor. Fifteen of the 16 items associated with this factor were from the Brown and Alexander Perceptions of Academic Competence subscale. The remaining item was associated with the Perception of Familial Acceptance Subscale.

Finally, Factor IV, which had a prerotational eigenvalue of 2.86, was defined by 15 items. Of these items, eight were from Brown and Alexander's Perception of Peer Popularity subscale, and the remaining seven were from the Perception of Personal Security subscale. Generally, the peer popularity items had somewhat larger structure coefficients, suggesting the factor was most closely approximating this subscale.

Interestingly, the five-factor solution produced much clearer familial acceptance and academic competence factors. However, the large first factor in this analysis was still relatively cluttered with items from the security, familial acceptance, and academic competence subscales. Moreover, the fifth factor in this solution was somewhat of a

weak duplication of the fourth factor, identified as peer popularity, making the fifth factor virtually uninterpretable. The six and seven factor solutions were characterized by similar problems along with the additional problem of the last one to two factors across these analyses being weakly identified by only one or two items.

Results of the Confirmatory LISREL Analysis

In order to further examine the factorial validity of the SEI, the data were subjected to a confirmatory factor analysis using LISREL VI. The purpose of confirmatory factor analysis is to determine the goodness-of-fit of an actual factor structure with a predicted structure (Long, 1983). In the present case, the predicted factors were the four SEI subscales as determined by Brown and Alexander (1991). In an attempt to force the items into discrete factors and in order to be consistent with the Brown and Alexander study, the analysis specified orthogonality of the factors. The maximum likelihood factor structure matrix yielded by the LISREL analysis is presented in Table 2. The LISREL VI goodness-of-fit index, adjusted goodness-of-fit index, and the root mean square residual statistics were .589, .568, and .137, respectively, indicating that the factor structure identified by Brown and Alexander did not match the observed factor structure. The chi-square goodness-of-fit statistic was 5614.93 ($df = 3079$; $p < .001$). The statistically significant p value associated with this chi-square statistic further indicated that the theorized model did not adequately reproduce the observed correlation matrix. Interestingly, however, despite the poor model fit, the maximum likelihood estimates were generally acceptable, with only nine of the 80 free values less than $|.30|$. Of these nine values, six of them were associated

with items that had not been identified with any of the four factors interpreted in the foregoing exploratory factor analysis, suggesting that these items were generally inconsistent measures for the sample as a whole.

INSERT TABLE 2 ABOUT HERE

Results of Alpha Reliability Analyses

As a final measure of the psychometric properties of the SEI, the data were subjected to alpha reliability analysis. Generally speaking, coefficient alpha, a measure of the internal consistency of a given set of items, is a "lower bound" or floor estimate of the true reliability of an instrument (Crocker & Algina, 1986, p. 142). Separate estimates were computed for the entire instrument (80 items) and for the four expected subscales (20 items each). The alpha reliability for the entire scale was .9232, suggesting that the items are very internally consistent based on this data set and that a single composite score is reasonably reliable. Alpha estimates for the expected subscales were, expectedly, somewhat lower, although well within the ranges of the coefficients obtained by Brown and Alexander (1991). Coefficient alphas for the familial acceptance, academic competence, peer popularity, and personal security subscales were, respectively, .8765, .8472, .8100, and .8125.

Discussion

As previously noted, psychometrically sound measurements are crucial to the validity of social science research. Traditional measures of self-esteem have often been criticized for falling short of standards of psychometric quality. The purposes of the

present study were to assess the psychometric integrity of the Self-Esteem Index (SEI) using data collected from a field study, and to determine the degree to which validity and reliability data for this sample matched the data for the standardization sample as reported by Brown and Alexander (1991).

The results suggest that the factors generated by the SEI items using the data in hand at least approximate the factors identified by Brown and Alexander. In the defense of the instrument, it should be noted that the sample used in the present study is rather small for conducting factor analytic studies with the number or variables (i.e., 80) included in the SEI; hence, there is a relatively high likelihood that the present results are artifacts of the sample. As Gorsuch (1983, p. 147) has noted, "larger samples will usually lead to clearer indications of the number of factors. . . . With smaller samples, sampling errors will be more influential and thus limit the clarity of a solution."

However, even though the sample is relatively small for this purpose, the inclusion of a broad range of subjects (i.e., regular, gifted, and special needs students) more than likely served to increase response variance across individual SEI items, thereby increasing the likelihood that reasonable factors would emerge when the data were subjected to factor analysis. Moreover, since data from the sample in the present study are also being used for substantive research purposes (King & Daniel, 1994), it is advisable that estimates of the instrument's validity be computed even if these estimates are biased to a small sample. These estimates are particularly important considering the dearth of field studies substantiating the psychometric properties of the instrument.

Obviously, the identified factors are only weak reflections of the intended factors as presented by Brown and Alexander (1991). It is particularly discouraging that the confirmatory factor analytic proceduress resulted in such a poor fit of the actual factor structure to the intended structure. Nevertheless, it is encouraging that even though the factors that emerged from the exploratory analysis were somewhat cluttered with items from more than one of the intended subscales, items did generally tend to cluster in identifiable blocks within factors. For example, 11 intended personal security, 10 intended familial acceptance, and four intended academic competence items identified the first factor. Likewise, seven peer acceptance and seven personal security items identified the fourth factor. The first factor findings are particularly interesting considering that this factor may actually be a generalized factor showing the unidimensional nature of self-concept. In fact, inspection of the pre-rotated factor matrix indicated that 56 of the 80 (70%) SEI items were identified with this first factor.

Although the sample size problem may serve as one of the most logical explanations of the cluttered factors produced by the foregoing analyses, one rival hypothesis for the emergence of these factors might be that the raw data are the result of items and/or data collection procedures that were inappropriate for the age and functioning level of the students included in the study. In administering the instrument, the second author noted that many of the third and fourth grade students had difficulty not only with some of the vocabulary used in the instrument but also with the procedure for recording answers across the Likert scale. The large number of special needs students in the sample may well have further exacerbated this problem. The original

normative sample (Brown & Alexander, 1991) included students across a range of ages from middle childhood to later adolescence. Interestingly, as noted previously, reliabilities for the normative sample were generally lower for students at the lower end of the age continuum than for students in other categories across the continuum, indicating a higher degree of error variance for younger subjects. These results, along with those yielded by the present analyses, indicate that the instrument should be used cautiously with special needs students and students below grade 5. Additional studies assessing the readability of the instrument with younger and special needs students (cf. Mann, 1984) are needed.

It is noteworthy that of the four factors identified via the exploratory analysis, the familial acceptance factor was most clearly interpretable. Responses across these items were apparently systematically variant across subjects, suggesting the centrality of the family in young children's perceptions of their self-esteem. This finding is consistent with the factor validity data presented by Brown and Alexander (1991), considering that familial acceptance emerged as their first factor. Without a doubt, the family is the most significant socializing force in the life of a child, particularly in the early years of life. Schools and other interventio (agencies would do well to capitalize on the building of strong relationships with the home in an attempt to identify family problems that might diminish children's self-esteem and to identify ways in which the family and agencies can work together to enhance children's self-esteem.

The alpha reliability data are indeed encouraging, comparing favorably with the data presented by Brown and Alexander (1991). However, considering that the nature

of the factors derived from the exploratory factor analysis were inconsistent with the intended factors and that the expected factor model was not identified using the confirmatory factor analytic procedures, these data may not be as impressive as they seem. Since the items as a whole using the present study's data are relatively highly internally consistent, it is quite possible that any subset of the items might yield a fairly substantial coefficient alpha. Further, evidence of reliability in the presence of dubious validity evidence may be comparable to holding a ring of usable keys but not knowing whether any of them will fit the lock on a given door.

Recommendations for Future Study

Based on the results of the present study, two additional recommendations for use of the SEI are warranted. First, researchers need to develop additional estimates of the SEI's psychometric properties using data from diverse samples. Considering the premises on which the present study was based, the first recommendation represents somewhat of a circular logic. However, the present study's results have served to intensify the importance of the introductory remarks regarding the need for additional SEI field studies considering the inconsistencies between the present findings and those yielded by the normative study. Such studies may prove useful in indicating whether certain items included in the SEI are more or less appropriate for certain groups of subjects than for other.

Second, experimentation with the methods by which SEI data are collected might prove useful. Considering the potential problems with administering the instrument to younger or special needs students, use of a more "user friendly" response format might

be helpful. For example, children could be asked to respond to each item by circling a "smiley" face or "frowny" face. Ratings derived from this response format could be converted to numeric data for analytic purposes. Further, the SEI authors may wish to consider making more allowances for oral administration of the instrument to students in these categories than are recommended in the present examiner's manual.

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Table 1
Varimax Rotated Factor Matrix for Four-Factor Solution

	FACTOR I[1]	FACTOR II[2]	FACTOR III[3]	FACTOR IV[4]
SEI1	.26695	.39141**	.01731	.00047
SEI2	.09796	.09956	.54267**	.21121
SEI3	.10484	.17636	-.04934	.63073**
SEI4	.16491	-.03611	-.01981	.52355*
SEI5	.32528	.60123**	.13846	.03897
SEI6	.09507	.27091	.54773**	.31395
SEI7	-.00302	.21681	.06976	.50217**
SEI8	.25280	.00114	.14943	.29917
SEI9	.29400	.41926**	.05723	.24423
SEI10	.03309	.26918	.46493**	.16775
SEI11	.06683	.44161*	.10591	.44809**
SEI12	.43972**	-.04716	-.12760	.26704
SEI13	.43204*	.19766	.25439	.17582
SEI14	-.00364	.17681	.55891**	.23282
SEI15	-.11275	.26122	-.00452	.49203**
SEI16	.41339**	-.05003	.25480	.27312
SEI17	.29169	.42641**	.25401	-.11172
SEI18	.25765	-.20776	.59237**	.10200
SEI19	.14843	.40907*	.02220	.16154
SEI20	.40206**	-.22858	.25636	.04503
SEI21	.30978	.42905**	.27502	-.01960
SEI22	.07097	.26698	.40049**	-.09826
SEI23	-.00164	.36766*	.00003	.51628**
SEI24	.22362	.06910	.11287	.52145*
SEI25	.18195	.56116**	.23049	.11864
SEI26	.41150*	.09525	.26472	.09090
SEI27	-.06332	.45404*	.20472	.41597**
SEI28	.38086**	-.12435	-.11578	.35841*
SEI29	.19381	.52131**	.23165	.17708
SEI30	.30225	-.15977	.56624**	-.05778
SEI31	-.01841	.39227*	.12626	.61417**
SEI32	.33820	.12854	-.04304	.51821*
SEI33	.66055*	.37194**	.09905	.03469
SEI34	.06027	-.02170	.37284**	-.03172
SEI35	.00510	.35532*	-.14837	.18225
SEI36	.36584**	-.09271	-.26600	.27865
SEI37	.67467*	.14093	.10928	-.05140
SEI38	.09565	.20475	.64494**	.13072
SEI39	-.07421	.32488	-.01020	.38344**
SEI40	.51803**	.08010	.07585	.29398
SEI41	.20404	.37604**	.35089*	-.08178
SEI42	.32900	.09889	.35791**	.32193
SEI43	-.06535	.31104	-.16868	.17003
SEI44	.21730	-.04097	.08696	.43546*
SEI45	.42991*	.29839	.09145	.01625
SEI46	.20986	.01786	.45692**	-.12059
SEI47	-.13644	.43955*	.08730	-.01587
SEI48	.17806	-.04427	-.12522	.38538*
SEI49	.40942*	.30450	.31804	.19984

(continued)

(Table 1 continued)

SEI50	.51092*	.08508	.09973	.19530
SEI51	.12498	.40070*	.05567	.27987
SEI52	.46403**	.06091	.08470	.37055*
SEI53	.07246	.41423**	.15121	.22543
SEI54	.41489*	.09251	.49983**	.06702
SEI55	.06560	.37260*	-.06192	.17150
SEI56	.46142**	.20909	.02531	.18023
SEI57	.40612*	.20503	.26772	.10534
SEI58	-.04223	.18995	.61124**	.10883
SEI59	-.12398	.32037	-.24184	.11764
SEI60	.55698**	.09477	-.00352	.09531
SEI61	.54026*	.13301	.04194	.01145
SEI62	-.14314	.18010	.55241**	-.06033
SEI63	.11629	.46984*	.01715	-.03428
SEI64	.27493	-.16571	.05348	.24822
SEI65	.11592	.56219**	.14677	.20432
SEI66	.07984	-.06251	.49143**	-.15460
SEI67	.01175	.44923*	.24526	.03593
SEI68	.39508**	-.15299	.32244	.13031
SEI69	.46459*	.22990	.14010	-.18905
SEI70	.50980*	.10820	.32439	.01582
SEI71	-.07852	.30055	.06165	-.00081
SEI72	.32545	-.05637	-.01600	-.01409
SEI73	.46004*	.18202	.20274	-.01043
SEI74	-.05218	.24135	.32635	-.11475
SEI75	.06137	.42776*	-.22588	-.18886
SEI76	.32887	-.18505	.25878	-.08170
SEI77	.56031*	-.01575	.00352	.10124
SEI78	.04297	.39234*	.28545	-.02630
SEI79	.10938	.26800	.08550	.12059
SEI80	.37268**	.16233	-.11035	.16240

Note: Items identified by a double-star (**) met the minimum factor saliency criterion of |.30| and were associated with the factor most similar to the subscale of the SEI to which they were associated as identified in the standardization study of the instrument (Brown & Alexander, 1991). Items identified by a single star (*) met the saliency criterion but were associated with a factor other than the one with which they were expected to be identified.

[1]Factor I was most clearly associated with the intended personal security subscale of the SEI.

[2]Factor II was most clearly associated with the intended familial acceptance subscale of the SEI.

[3]Factor III was most clearly associated with the intended academic competence subscale of the SEI.

[4]Factor IV was most clearly associated with the intended peer popularity subscale of the SEI.

Table 2
LISREL ESTIMATES (MAXIMUM LIKELIHOOD)

	FAMILIAL	ACADEMIC	PEER	SECURITY
SEI1	.460	.000	.000	.000
SEI2	.000	.569	.000	.000
SEI3	.000	.000	.514	.000
SEI4	.000	.000	.000	.375
SEI5	.645	.000	.000	.000
SEI6	.000	.650	.000	.000
SEI7	.000	.000	.465	.000
SEI8	.000	.000	.000	.355
SEI9	.495	.000	.000	.000
SEI10	.000	.537	.000	.000
SEI11	.000	.000	.647	.000
SEI12	.000	.000	.000	.465
SEI13	.522	.000	.000	.000
SEI14	.000	.563	.000	.000
SEI15	.000	.000	.486	.000
SEI16	.000	.000	.000	.481
SEI17	.518	.000	.000	.000
SEI18	.000	.542	.000	.000
SEI19	.000	.000	.389	.000
SEI20	.000	.000	.000	.379
SEI21	.573	.000	.000	.000
SEI22	.000	.402	.000	.000
SEI23	.000	.000	.619	.000
SEI24	.000	.000	.000	.464
SEI25	.552	.000	.000	.000
SEI26	.000	.403	.000	.000
SEI27	.000	.000	.628	.000
SEI28	.000	.000	.000	.497
SEI29	.595	.000	.000	.000
SEI30	.000	.534	.000	.000
SEI31	.000	.000	.759	.000
SEI32	.000	.000	.000	.547
SEI33	.715	.000	.000	.000
SEI34	.000	.323	.000	.000
SEI35	.000	.000	.324	.000
SEI36	.000	.000	.000	.404
SEI37	.562	.000	.000	.000
SEI38	.000	.687	.000	.000
SEI39	.000	.000	.532	.000
SEI40	.000	.000	.000	.600
SEI41	.426	.000	.000	.000
SEI42	.000	.510	.000	.000
SEI43	.000	.000	.220	.000
SEI44	.000	.000	.000	.435
SEI45	.528	.000	.000	.000
SEI46	.000	.419	.000	.000
SEI47	.000	.000	.277	.000
SEI48	.000	.000	.000	.338
SEI49	.619	.000	.000	.000

(continued)

(Table 2 continued)

SEI50	.000	.315	.000	.000
SEI51	.000	.000	.392	.000
SEI52	.000	.000	.000	.594
SEI53	.396	.000	.000	.000
SEI54	.000	.615	.000	.000
SEI55	.000	.000	.389	.000
SEI56	.000	.000	.000	.487
SEI57	.535	.000	.000	.000
SEI58	.000	.519	.000	.000
SEI59	.000	.000	.271	.000
SEI60	.000	.000	.000	.460
SEI61	.452	.000	.000	.000
SEI62	.000	.550	.000	.000
SEI63	.000	.000	.352	.000
SEI64	.000	.000	.000	.329
SEI65	.511	.000	.000	.000
SEI66	.000	.334	.000	.000
SEI67	.000	.000	.316	.000
SEI68	.000	.000	.000	.399
SEI69	.441	.000	.000	.000
SEI70	.000	.473	.000	.000
SEI71	.000	.000	.230	.000
SEI72	.000	.000	.000	.258
SEI73	.461	.000	.000	.000
SEI74	.000	.296	.000	.000
SEI75	.000	.000	.163	.000
SEI76	.000	.000	.000	.176
SEI77	.333	.000	.000	.000
SEI78	.000	.317	.000	.000
SEI79	.000	.000	.289	.000
SEI80	.000	.000	.000	.393